

### **Remarks/Arguments**

Upon entry of the foregoing amendments, new claims 46 to 55 will be pending in this patent application. Claims 1-45 have been cancelled without prejudice. Applicants reserve their right under 35 USC § 121 to present the subject matter of the claims 1-45 in a subsequently filed patent application and/or request reinstatement of the subject matter contained therein in view of the following remarks.

In the present response, new claims 46-55 have been added herein. Support for claim 46 is provided, for example, in paragraphs [0032], [0034] – [0037], [0041], Example 10 and original claims 42-43 and 45. Support for claim 47 is provided, for example, in paragraphs [0032], [0036]-[0037], and original claims 42-43. Support for claim 48 is provided, for example, in paragraphs [0032], [0036]-[0037], and original claim 42. Support for claim 49 is provided, for example, in paragraphs [0032], [0036]-[0037], and original claim 45. Support for claim 50 is provided, for example, in paragraphs [0032] and [0036]-[0037]. Support for claim 51 is provided, for example, in paragraph [0038] and original claim 5. Support for claim 52 is provided, for example, in paragraph [0047] and original claim 18. Support for claim 53 is provided, for example, in paragraph [0046] and original claim 19. Support for claim 54 is provided, for example, in paragraph [0051] and original claim 21. Support for claim 55 is provided, for example, in paragraphs [0032], [0033], [0036]-[0037], [0041], and [0044]. Applicants respectfully request entry of the new claims.

In paragraph 1 of the Office Action, the Examiner has requested that Applicants restrict their invention to one of the following Groups:

- I: Claims 1 – 22 and 24-45 “drawn to a method of coating, classified in class 427, subclass 255.28”; and
- II: Claims 23 “drawn to a substrate coated with a metal film, classified in class 428, subclass 450”.

Cancellation of claim 23 in Group II renders this particular restriction requirement moot.

The Examiner has further requested that Applicant “elect a single disclosed species for prosecution on the merits” because “[t]here is an examination and search burden for these patentably distinct species.” In this regard, the Examiner has requested in paragraph 4 of the Office Action that Applicants choose a species in the following manner:

- a. Species A – J which correspond to Examples 1 – 10; or

b. One species each from the following groups:

- 1) type of diffusion barrier surface
- 2) type of orientation of barrier layer surface
- 3) type of stoichiometry of barrier surface
- 4) type of adhesion agent
- 5) type of exposure of adhesion agent
- 6) type of organometallic precursor
- 7) type of deposition

In response to the election of the species requirement, Applicants elect –without prejudice- the following species: type of diffusion barrier surface – tungsten nitride; type of orientation of barrier layer surface – other than substantially (111) orientation; type of stoichiometry of barrier surface – stoichiometric amount or greater of nitrogen to tungsten contained therein; type of adhesion agent – comprising nitrogen; type of exposure of adhesion agent – prior to; type of organometallic precursor - copper; and type of deposition – chemical vapor deposition.

Applicants respectfully traverse the election of species requirement on the following basis. If the search and examination of the entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims directed to independent or distinct inventions. MPEP §803. In addition, some of the species within the claims are members of Markush groups. In this regard, if the members of the Markush group are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without serious burden, the Examiner must examine all the members of the Markush group in the claim on the merits, even though they may be directed to independent or distinct inventions. MPEP §803.02.

Applicants respectfully submit that there would be no serious burden on the Patent Office to examine in this application all of the species contained within the present claims because the subject matter is sufficiently related such that a search of any one particular species would encompass a search for the other species contained therein. Indeed, Applicants kindly direct Examiner's attention to the prosecution history for the parent application to the present application or Application No. 10/428,447 (the '447 application).

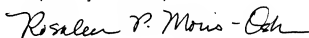
For example, in the '447 application, the Examiner examined all of the following species within the claims during prosecution: type of diffusion barrier layer; type of orientation of barrier layer surface; type of organometallic precursor; and type of deposition. Since the Examiner in the '447 application was able to examine all of the species within the now-issued application without any serious burden then the present application should be similarly examined. Thus, the election of species requirement is improper and should not be maintained. Reconsideration and withdrawal of the election of species requirement are respectfully requested.

Applicants respectfully submit that this application is now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance are respectfully requested.

The Commissioner is hereby authorized to charge the fee required and any additional fees that may be needed to Deposit Account No. 01-0493 in the name of Air Products and Chemicals, Inc.

Should the Examiner require any further information, the Examiner is invited to contact Applicants' undersigned Attorney at the telephone number listed below.

Respectfully submitted,



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